Kennecott Utah Copper Corporation
12000 West 2100 South
P.O. Box 6001
Magna, Utah 84044-6001
Tel: (801) 569-7553
Fax: (801) 569-6408

William J. Adams , Ph.D.
Director, Environmental Affairs

m/035/011

Kennecott

March 22, 2002

Mr. Rick Sprott, Director
Utah Division of Air Quality
Department of Environmental Quality
P. O. Box 144820
150 North 1950 West
Salt Lake City, Utah 84114-4820

Mary Ann Wright, Director
Minerals Reclamation Program
Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
PO Box 145801
Salt Lake City, Utah 84114-5801

Don A. Ostler, Director
Division of Water Quality
Utah Department of Environmental Quality
P.O. Box 144870
Salt Lake City, UT 84114-4870

Subject: Temporary Ore Stockpile at KUCC Copperton Concentrator

Dear Mr. Sprott, Ms. Wright and Mr. Ostler:

In order to ensure continuous operation of the Copperton Concentrator during the relocation of the primary crusher in the Bingham Pit, Kennecott Utah Copper Corporation (KUCC) will build a temporary ore stockpile immediately west of the existing ore stockpile at the Copperton Concentrator during April through August 2002, and then move the ore from the temporary stockpile back to the A-Frame during the crusher relocation in August, September and/or October. This will allow for continuous operation during the period that the mine is unable to deliver ore to the concentrator.

The site is shown on the attached drawing. The existing stockpile has recently been extended to the west onto previously disturbed ground. A total of about 200,000 tons of ore will be pushed with dozers and loaders from the A-Frame onto the temporary stockpile, and later about 800,000

tons more will be loaded into trucks at the A-Frame using loaders, and trucked to the temporary stockpile just west of the A-Frame. KUCC will use two or three 100-ton trucks, which had been used at the Kennecott Barneys Canyon Mine. The haul distance will average approximately 700 feet. Building the stockpile will continue intermittently until the in-pit crusher is shut down for the move, or until the stockpile reaches 1,000,000 tons of ore.

Topsoil will be dozed into windrows around the ore stockpile site. Remaining topsoil will be salvaged and stockpiled just south of the ore stockpile. Stockpiled topsoil will be moved with the 100-ton trucks . The topsoil haul distance will average approximately 700 feet and the stockpile will cover approximately one acre.

Once the in-pit crusher goes down, no more ore can be conveyed to the A-Frame until the crusher restarts at its new location in about 10 days. With the crusher down, KUCC will keep the Copperton Concentrator supplied by moving ore back from the temporary stockpile to the A-Frame. About 400,000 tons will be moved in 240-ton mine haul trucks, about 200,000 tons will be moved in the 100-ton trucks, and about 400,000 tons will be pushed back into the A-Frame using dozers and loaders. All ore will be removed from the temporary stockpile by the end of October at the latest. After all of the ore has been removed, the site will be recontoured, the salvaged topsoil will be replaced on the surface, and seed will be applied during the fall of 2002. The pile will have been depleted and reclaimed before the next PM_{10} season begins on November 1.

Activities at the temporary stockpile will be very similar to activities at the reload pile that KUCC operated, first in the mine and then in Bingham Canyon, until June 2001, except for the use of 100-ton trucks. The reload pile at that time was about 6 acres, as compared to a maximum of 9 acres for the temporary stockpile in September 2002. Emissions from truck traffic in the stockpile area will be minimal (about 0.4 tons of PM_{10}), because the haul distance will be very short, and as a result, the trucks will rarely be able to reach a speed above 8 mph, and will average about 6 mph. Potential dust emissions in 2002, with a temporary stockpile at Copperton, but also with no Bonneville ore being handled, are estimated to be about 100 tons less than allowable. See the attached calculations of stationary source PM_{10} emissions.

A water truck will be available to control dust in the stockpile area. The stockpile and associated roads will be watered as necessary to control fugitive dust.
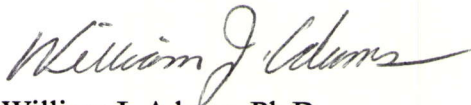
The total disturbance associated with this project will be no more than 20 acres and will be within the current boundaries of Division of Oil, Gas, and Mining (DOGM) Permit number M/035/011. The footprint of the ore stockpile itself will not exceed 9 acres.

Potential impacts to surface and ground water will be minimal. As shown on the attached map, the site is located on a dry upland area, immediately up-gradient from the current stockpile. The stockpile will be surrounded by an earthen berm that will prevent contact water and sediment from reaching the surrounding dry washes. The stockpile will be in place for less than seven months and will only contain ore between April and October. The relatively small footprint of the ore stockpile, and the fact that it will only exist during periods of low rainfall and high evapotranspiration will limit the amount of contact water that could infiltrate or runoff. The

stockpile will not exist for a long enough period to allow significant sulfide oxidation to occur in the ore. The risk of acidification or for the release of soluble constituents from the stockpile is thus negligible.

Please do not hesitate to contact me at 801-569-7553 if you have any questions or concerns about the temporary stockpile. You may also contact Lydia Salmon at 801-569-7499 for questions about air quality issues or Rich Borden at 801-569-7141 for questions about water quality or reclamation issues.

Sincerely,

William J. Adams, Ph.D.
Director, Environmental Affairs

Attachments
        Drawing
        Calculations

cc: Rob Leishman, UDAQ
        Dan Hall, DWQ
        Wayne Hedberg, DOGM
        Lydia Salmon
        Rich Borden
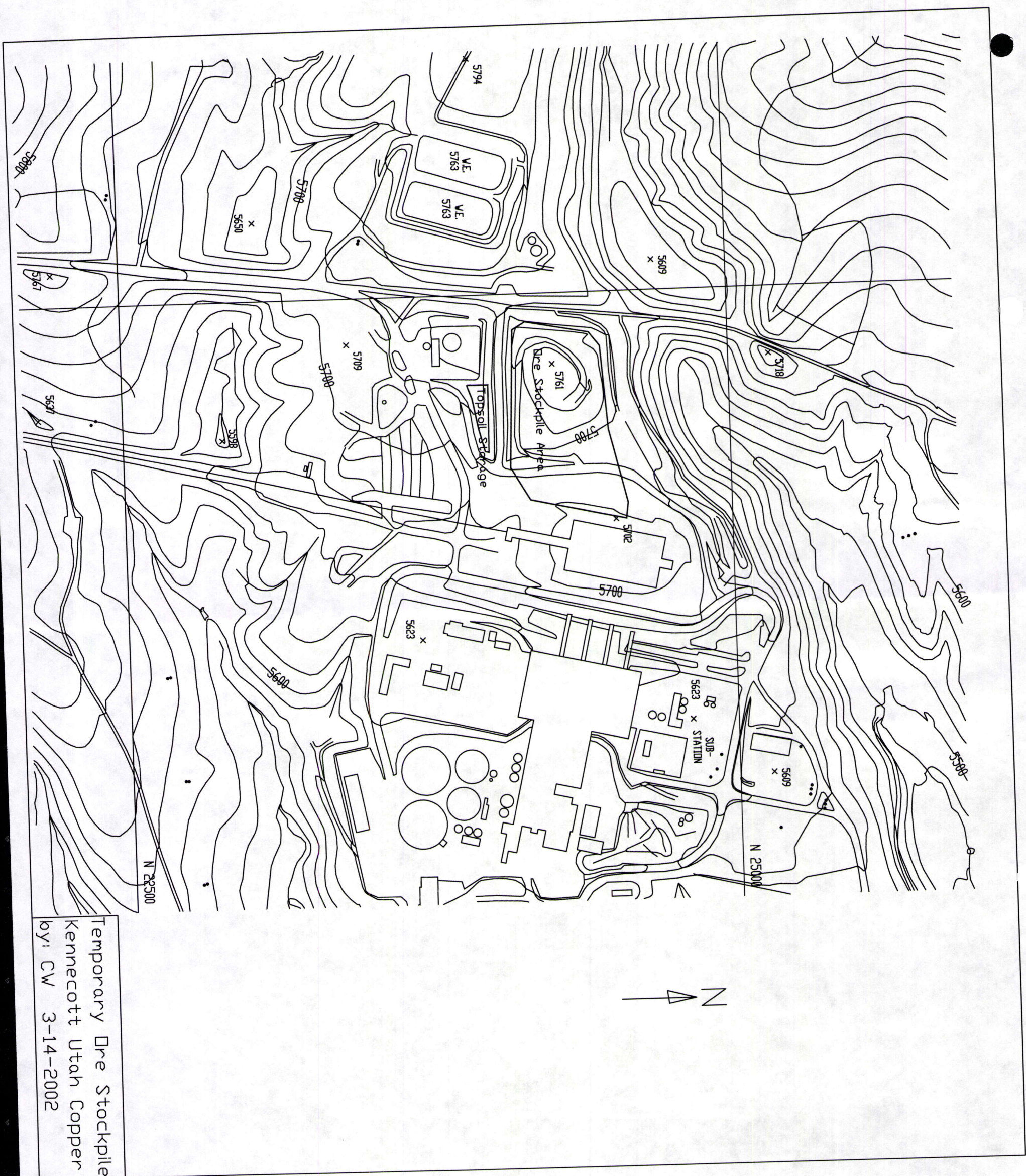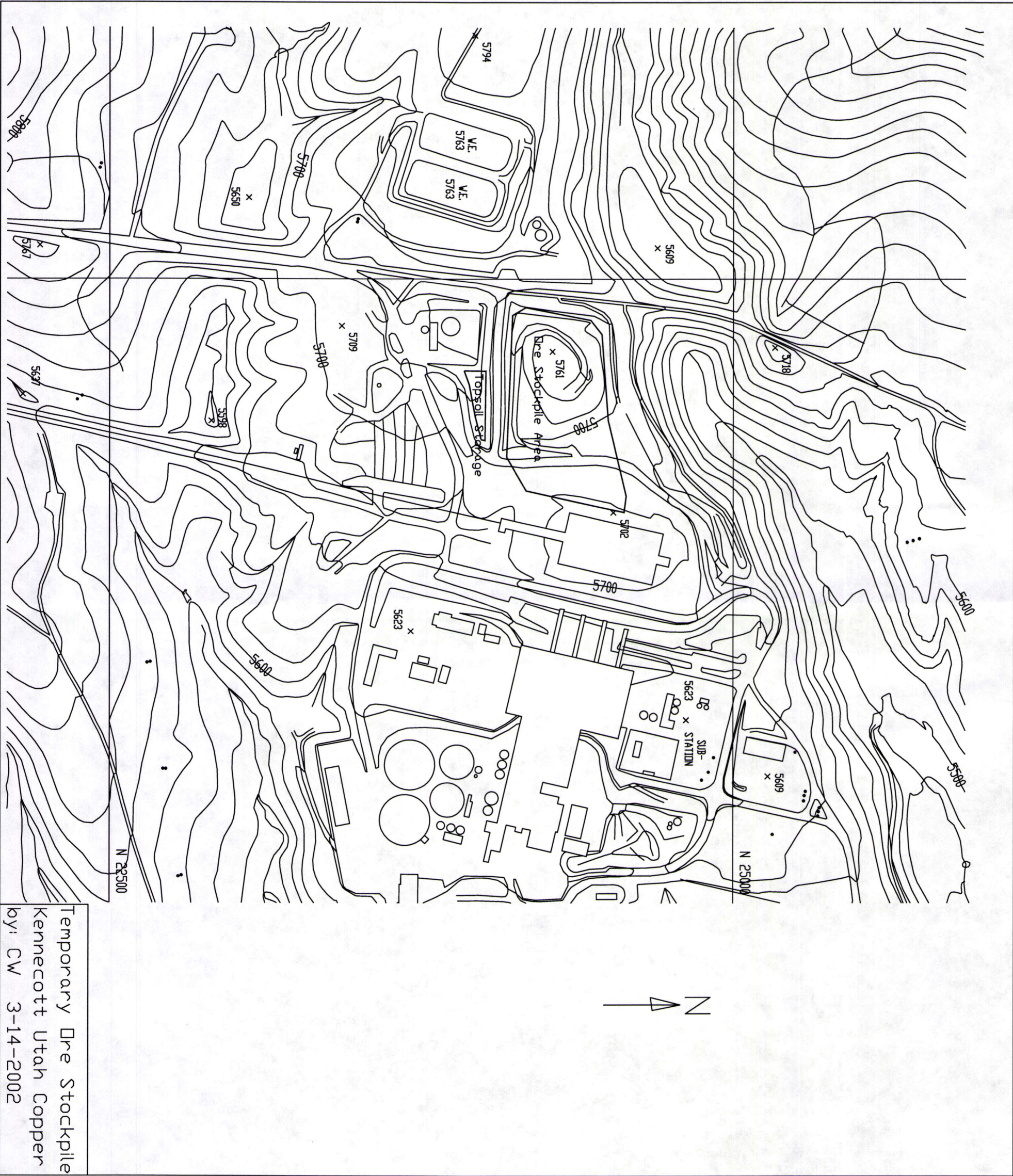
Temporary Ore Stockpile
Kennecott Utah Copper
by: CW 3-14-2002

Temporary Ore Stockpile
Kennecott Utah Copper
by: CW 3-14-2002

N 29500

N 25000

→ N

5794

V.E. 5763

V.E. 5763

5650 ×

5609 ×

5709 ×

5709 ×

5598 ×

× 5761

Ore Stockpile Area

Topsoil Storage

5718 ×

× 5702

5623 ×

5623 × SUB-STATION

5609 ×

5700

5700

5700

5700

5600

5600

5600

5500

5586

5637

5637

5586

5586

5767 ×

Stationary Source PM10 Emissions
Comparison of Allowable Emissions with
Expected 2002 Emissions with Crusher Move, no Bonneville Ore, and Temporary Stockpile

	Allowable PM$_{10}$ (TPY)	With Crusher Move, Stockpile & No Bonneville Ore PM$_{10}$ (TPY)	Increase PM$_{10}$ (TPY)
Point Sources	14.32	13.97	-0.35
Drilling	2.11	2.11	0.00
Blasting	55.21	55.21	0.00
Transfers	63.94	60.32	-3.61
Storage Piles:			
A-Frame	0.08	0.03	-0.05
Temporary		0.11	0.11
Temp. Topsoil		0.01	0.01
Unstabilized Area	170.17	170.17	0.00
Mine Haul Roads	1,576.23	1,476.32	-99.90
Haulage to & from Temp. Stockpile		0.33	0.33
Dozers	93.39	93.39	0.00
Graders	240.18	240.18	0.00
Loaders	8.39	11.70	3.31
Total Stationary Sources	2,224.01	2,123.86	-100.15

3/22/2002

Stationary Sources

Point Sources of PM_{10}

Point Sources
$$PM_{10} \text{ (TPY)} = G*SF*60*H/(7000*2000)$$

Point Sources Controlled by Baghouses	G Grain Loading (gr/dscf) Limit	SF Std Flow (dscfm)	H Operating Time (Hours)	PM_{10} (TPY)	(lb/hr)
In-pit Primary Crusher	0.016	12,898	8760	7.75	1.77
Transfer Points:					
@ Tunnel Exit (C6/C7)	0.016	**5,120**	8760	3.08	**0.70**
@ Copperton (C7/C8)	0.016	**3,168**	8760	1.90	**0.43**
LimeBin#1	0.016	616	8760	0.37	
LimeBin#2	0.016	616	8760	0.37	
Sand Tower @ Copperton	0.016	**63**	**1**	**0.000004**	
Sample Preparation	0.016	**4,269**	2920	**0.85**	
Total Point Sources				14.32	

Fugitive Dust Sources

Drilling (AP-42, 5th Ed., Suppl. E, Table 11.9-4 (7/98) Western Surface Coal Mines)
PM_{10} (TPY) = H*F*R*(1-0.01*E)/2000 lb/ton

H Holes/ yr	F TSP Emission Factor (lb/hole)	R PM_{10}:TSP Ratio	E Control Efficiency Water (%)	PM_{10} (TPY)
65,000	1.30	0.50	90%	2.11

Blasting (AP-42, 5th Ed., Suppl. E, Table 11.9-1 (7/98) Western Surface Coal Mines)
PM_{10} (TPY) = B*F*((A)^1.5)*R/2000 lb/ton   (Slight change since 1990)

B Blasts/yr	F TSP Emission Factor (lb/blast)	A Area per Blast (sq ft)	R PM_{10}:TSP Ratio	PM_{10} (TPY)
1,100	0.000014	57,500	0.52	55.21

3/22/2002

Transfers (AP-42 Aggregate Handling & Storage Piles - Section 13.2.4, 1/95)

$$PM_{10} \text{ (TPY)} = H*F*0.0032*(W/5)^{1.3}*(1-0.01*E)/(((M/2)^{1.4})*2000)$$

	H Material Handled (tons/yr)	F PM_{10} Particle Size Factor	W Mean Wind Speed (MPH)	M Material Moisture Content(%)	E Control Efficiency (%)	PM_{10} (TPY)
Truck loading						
Ore (Total)	71,000,000					
Waste	126,000,000					
Total	197,000,000	0.35	7	4	90%	6.474
Truck dump to crusher - Copperton ore						
Ore(Cpn)	58,500,000	0.35	7	4	90%	1.92
In-pit Enclosed Transfer Points - Copperton Ore						
M3/M4	58,500,000	0.35	7	4	90%	1.92
M4/C6	58,500,000	0.35	7	4	90%	1.92
Conveyor C8 to Stacker Transfer						
Ore (Cptn)	58,500,000	0.35	7	4	90%	1.92
Drop to Coarse Ore Storage Pile						
Ore (Cptn)	58,500,000	0.35	7	4	90%	1.92
Coarse Ore Reclaim Tunnel Vent						
Ore (Cptn)	58,500,000	0.35	7	4	90%	1.92
Truck dump to reload pile - Bonneville ore						
Ore (Bnvl)	12,500,000	0.35	7	4	0%	4.11
Ore Drop to Railroad Cars - Bonneville Ore						
Ore (Bnvl)	12,500,000	0.35	7	4	90%	0.41
Truck dumping of waste						
Waste	126,000,000	0.35	7	4	0%	41.408
Total transfers						63.94

Coarse Ore Storage Pile (AP-42 Aggregate Handling & Storage Piles -
Sec. 11.2.3-5 4th Edition)

$$PM_{10}(TPY) = 0.3*1.7*(S/1.5)*((Days-DP)/235)*(W/15)*A*(1-0.01*E)*Days/2000$$

Days = 365

	S Silt Content of Mtrl %	DP Days with >0.01 in precip	W % of Time Wind spd is>12 mph	A Acreage of Pile	E Control Efficiency (%)	PM$_{10}$ (TPY)
Cpptn Ore	1	98	17	10	90%	0.08

Unstabilized Area Emissions (AP-42, 5th Ed., Suppl E,
Western Surface Coal Mining, Table 11.9-4, 7/98)

$$PM_{10} (TPY) = F*R*A*D/365$$

	F TSP Emission Factor (tons/acre/yr)	R PM$_{10}$:TSP Ratio	A Disturbed Area (acres)	D Days/yr	PM$_{10}$ (TPY)
SSF	0.38	0.37	1485	275	157.31
Winter	0.38	0.37	371	90	12.86
Total					170.17

3/22/2002

Haul Roads (AP-42 Unpaved Roads - Sec.13.2.2, 9/98)

$$PM_{10} (TPY) = VMT*[2.6*((S/12)^{0.8})*((Wt/3)^{0.4}/((M/0.2)^{0.3})]*(min(Spd,15)/15)$$
$$*[(Days-DP)/Days]*(1-0.01*E)/2000$$

S = Silt content of road Material (%)   8

	Total Tonnage Hauled	VMT Vehicle Miles Traveled	Spd Speed (mph)	Wt Weight (tons)	Notes
Haul Trucks					
Winter-Full	49,250,000	718,229	11.9	403	Haul Truck VMT =
Winter-Empty		718,229	**16.2**	163	L * (Total Tonnage Hauled/
Spring&fall -Full	98,500,000	1,436,458	11.9	403	Tons in one truck)
Spring&fall -Empty		1,436,458	**16.2**	163	
Summer-Full	49,250,000	718,229	11.9	403	L = Road Length (avg one way)
Summer-Empty		718,229	**16.2**	163	= 3.5 miles
Full Year Total	197,000,000	5,745,833			

	H=Hours	VMT=H*Spd	Spd	Wt	
Scrapers					
Winter	**219**	2,628	12	109.5	
Spring&fall	**438**	5,256	12	109.5	
Summer	**219**	2,628	12	109.5	
Full Year Total	**876**	10,512			

			Spd	Wt	
Rollers					
Winter	75	375	5	100	
Spring&fall	150	750	5	100	
Summer	75	375	5	100	
Full Year Total	300	1,500			

	M Road Material Moisture content (%) If Uncontrolled	Total VMT Vehicle Miles Traveled	Weighted Averages Spd Speed (mph)	Wt Weight (tons)	DP Days with >0.01 in precip	E Control Efficiency Water (%)	PM$_{10}$ (TPY)
Winter	4	1,439,461	14.0	282.6	32.3	95%	101.84
Spring&fall	2	2,878,923	14.0	282.6	65.7	85%	752.10
Summer	1	1,439,461	14.0	282.6	o	85%	722.29
Full Year		5,757,845					1576.225

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Dozers (AP-42, 5th Ed., Suppl E, Western Surface Coal Mining - Table 11.9-1 (7/98))
PM_{10} (TPY) = $0.75*(s^{1.5})*H/((M^{1.4})*2000)$

	S Material Silt Content (%)	M Material Moist Content (%)	N Number of Dozers	H Hours Worked	PM_{10} (TPY)
Track	8	4	22	2,190	58.70
Wheeled	8	4	13	2,190	34.69

Graders (AP-42, 5th Ed., Suppl E, Western Surface Coal Mining - Table 11.9-1 (7/98))
PM_{10} (TPY) = $0.60*0.051*S^2*VMT/2000$, VMT=H*S

s Mean Grader Speed (mph)	N Number of Graders	H Hours Worked	PM_{10} (TPY)
8	14	2,190	240.18

Loaders (AP-42, 5th Ed., Suppl E, Western Surface Coal Mining - Table 11.9-1 (7/98))
PM_{10} (TPY) = $0.75*0.119*Q/(M^{0.9}*2000)$

M Material Moisture Content (%)	Q Material Loaded (tons)	PM_{10} (TPY)
4	654,485	8.387

Scrapers and Rollers are now included under unpaved haul roads.

	Point	Fugitive	Total
Total Bingham Mine Stationary Source PM_{10} (TPY)	14.32	2209.69	2224.01

Stationary Sources

Point Sources of PM₁₀

Point Sources
$$PM_{10}\text{ (TPY)} = G*SF*60*H/(7000*2000)$$

Point Sources Controlled by Baghouses	G Grain Loading (gr/dscf) Limit	SF Std Flow (dscfm)	H Operating Time (Hours)	PM₁₀ (TPY)	PM₁₀ (lb/hr)
In-pit Primary Crusher	0.016	12,898	8520	7.54	1.77
Transfer Points:					
@ Tunnel Exit (C6/C7)	0.016	5,120	8520	2.99	0.70
@ Copperton (C7/C8)	0.016	3,168	8520	1.85	0.43
LimeBin#1	0.016	616	8760	0.37	
LimeBin#2	0.016	616	8760	0.37	
Sand Tower @ Copperton	0.016	63	1	0.000004	
Sample Preparation	0.016	4,269	2920	0.85	
Total Point Sources				13.97	

Fugitive Dust Sources

Drilling (AP-42, 5th Ed., Suppl. E, Table 11.9-4 (7/98) Western Surface Coal Mines)
PM_{10} (TPY) = H*F*R*(1-0.01*E)/2000 lb/ton

H	F	R	E	
Holes/	TSP Emission Factor	PM_{10}:TSP	Control Efficiency	PM_{10}
yr	(lb/hole)	Ratio	Water (%)	(TPY)
65,000	1.30	0.50	90%	2.11

Blasting (AP-42, 5th Ed., Suppl. E, Table 11.9-1 (7/98) Western Surface Coal Mines)
PM_{10} (TPY) = B*F*((A)^1.5)*R/2000 lb/ton   (Slight change since 1990)

B	F	A	R	
	TSP Emission	Area		
	Factor	per Blast	PM_{10}:TSP	PM_{10}
Blasts/yr	(lb/blast)	(sq ft)	Ratio	(TPY)
1,100	0.000014	57,500	0.52	55.21

3/22/2002

Transfers (AP-42 Aggregate Handling & Storage Piles - Section 13.2.4, 1/95)

PM_{10} (TPY) = H*F*0.0032*(W/5)^1.3*(1-0.01*E)/(((M/2)^1.4)*2000)

	H Material Handled (tons/yr)	F PM_{10} Particle Size Factor	W Mean Wind Speed (MPH)	M Material Moisture Content(%)	E Control Efficiency (%)	PM_{10} (TPY)
Truck loading						
Ore (Total)	58,500,000					
Waste	126,000,000					
Total	184,500,000	0.35	7	4	90%	6.063
Truck dump to crusher - Copperton ore						
Ore(Cpn)	58,500,000	0.35	7	4	90%	1.92
In-pit Enclosed Transfer Points - Copperton Ore						
M3/M4	58,500,000	0.35	7	4	90%	1.92
M4/C6	58,500,000	0.35	7	4	90%	1.92
Conveyor C8 to Stacker Transfer						
Ore (Cptn)	58,500,000	0.35	7	4	90%	1.92
Drop to Coarse Ore Storage Pile						
Ore (Cptn)	58,500,000	0.35	7	4	90%	1.92
Coarse Ore Reclaim Tunnel Vent						
Ore (Cptn)	58,500,000	0.35	7	4	90%	1.92
Truck dump to Storage Piles						
Ore (Bnvl)	0	0.35	7	4	0%	0.00
Ore (Temp stkpil	1,000,000	0.35	7	4	0%	0.33
Ore (A-frame)	1,000,000	0.35	7	4	0%	0.33
Ore Drop to Railroad Cars - Bonneville Ore						
Ore (Bnvl)	0	0.35	7	4	90%	0.00
Truck load @ Storage Piles						
Ore (Temp stkpil	1,000,000	0.35	7	4	0%	0.33
Ore (A-frame)	1,000,000	0.35	7	4	0%	0.33
Truck dumping of waste						
Waste	126,000,000	0.35	7	4	0%	41.408
Total transfers						60.32

3/22/2002

Coarse Ore Storage Pile (AP-42 Aggregate Handling & Storage Piles -
Sec. 11.2.3-5 4th Edition)

$$PM_{10}(TPY) = 0.3*1.7*(S/1.5)*((Days-DP)/235)*(W/15)*A*(1-0.01*E)*Days/2000$$

Days =   365

	S Silt Content of Mtrl %	Days	DP Days with >0.01 in precip	W % of Time Wind spd is ≥ 12 mph	A Acreage of Pile	E Control Efficiency (%)	PM_{10} (TPY)
A-Frame	1	365	98	17	3.7	90%	0.03
Temporary	1	214	77	17	9.0	50%	0.11
Temp. Topsoil	1	214	77	17	1.0	50%	0.01

Unstabilized Area Emissions (AP-42, 5th Ed., Suppl E,
Western Surface Coal Mining, Table 11.9-4, 7/98)

$$PM_{10} (TPY) = F*R*A*D/365$$

	F TSP Emission Factor (tons/acre/yr)	R PM_{10}:TSP Ratio	A Disturbed Area (acres)	D Days/yr	PM_{10} (TPY)
SSF	0.38	0.37	1485	275	157.31
Winter	0.38	0.37	371	90	12.86
Total					170.17

Haul Roads (AP-42 Unpaved Roads - Sec.13.2.2, 9/98)

PM_{10} (TPY) = VMT*[2.6*((S/12)^0.8)*((Wt/3)^0.4)/((M/0.2)^0.3)]*(min(Spd,15)/15)

[(Days-DP)/Days](1-0.01*E)/2000

				S = Silt content of road Material (%)	8

	Total Tonnage Hauled	VMT Vehicle Miles Traveled	Spd Speed (mph)	Wt Weight (tons)	Notes
Haul Trucks					
Winter-Full	46,125,000	672,656	11.9	403	Haul Truck VMT =
Winter-Empty		672,656	16.2	163	L * (Total Tonnage Hauled/
Spring&fall -Full	92,250,000	1,345,313	11.9	403	Tons in one truck)
Spring&fall -Empty		1,345,313	16.2	163	
Summer-Full	46,125,000	672,656	11.9	403	L = Road Length (avg one way)
Summer-Empty		672,656	16.2	163	= 3.5 miles
Full Year Total	184,500,000	5,381,250			

	H=Hours	VMT=H*Spd	Spd	Wt
Scrapers				
Winter	219	2,628	12	109.5
Spring&fall	438	5,256	12	109.5
Summer	219	2,628	12	109.5
Full Year Total	876	10,512		

Rollers				
Winter	75	375	5	100
Spring&fall	150	750	5	100
Summer	75	375	5	100
Full Year Total	300	1,500		

	M Road Material Moisture content (%) If Uncontrolled	Total VMT Vehicle Miles Traveled	Weighted Averages Spd Speed (mph)	Weighted Averages Wt Weight (tons)	DP Days with >0.01 in precip	E Control Efficiency Water (%)	PM_{10} (TPY)
Winter	4	1,348,316	14.0	282.6	32.3	95%	95.38
Spring&fall	2	2,696,631	14.0	282.6	65.7	85%	704.43
Summer	1	1,348,316	14.0	282.6	0	85%	676.51
Full Year		5,393,262					1476.32

3/22/2002

Haul Roads @ Temporary Stockpile(AP-42 Unpaved Roads - Sec.13.2.2, 9/98)

PM_{10} (TPY) $= VMT*[2.6*((S/12)^{0.8})*((Wt/3)^{0.4}/((M/0.2)^{0.3})]*(min(Spd,15)/15)$
$*[(Days-DP)/Days]*(1-0.01*E)/2000$

S = Silt content of road Material (%)   8

	Total Tonnage Hauled	VMT Vehicle Miles Traveled	Spd Speed (mph)	Wt Weight (tons)	Notes
Haul Trucks					
Winter-Full	0	0	5	177.5	L = Road Length (avg one way)
Winter-Empty	0	0	5	77.5	= **0.13** miles
Spring&fall -Full	524,000	695	5	177.5	Topsoil + ore in build & reclaim stages
Spring&fall -Em	0	695	5	77.5	
Summer-Full	500,000	663	5	177.5	Ore in build & reclaim stages
Summer-Empty	0	663	5	77.5	
Winter-Full	0	0	5.0	403	Haul Truck VMT =
Winter-Empty		0	5.0	163	L * (Total Tonnage Hauled/
Spring&fall -Full	200,000	110	5.0	403	} Tons in one truck)
Spring&fall -Empty		110	5.0	163	}
Summer-Full	200,000	110	5.0	403	} ore in reclaim stage
Summer-Empty		110	5.0	163	}
Full Year Total	1,424,000	3,157			

	H=Hours	VMT=H*Spd	Spd	Wt
Scrapers				
Winter	0	0	7	109.5
Spring&fall	0	0	7	109.5
Summer	0	0	7	109.5
Full Year Total	0	0		

Rollers				
Winter	0	0	5	100
Spring&fall	0	0	5	100
Summer	0	0	5	100
Full Year Total	0	0		

	M Road Material Moisture content (%) If Uncontrolled	Total VMT Vehicle Miles Traveled	Weighted Averages Spd Speed (mph)	Wt Weight (tons)	DP Days with >0.01 in precip	E Control Efficiency Water (%)	PM_{10} (TPY)
Winter	4	0	0.0	0.0	32.3	95%	0.00
Spring&fall	2	1,610	5.0	148.8	45	85%	0.14
Summer	1	1,547	5.0	118.6	0	85%	0.20
Full Year		3,157					0.33

3/22/2002

Dozers (AP-42, 5th Ed., Suppl E, Western Surface Coal Mining - Table 11.9-1 (7/98))
PM_{10} (TPY) = $0.75*(s^{\wedge}1.5)*H/((M^{\wedge}1.4)*2000)$

	S Material Silt Content (%)	M Material Moist Content (%)	N Number of Dozers	H Hours Worked	PM_{10} (TPY)
Track	8	4	22	2,190	58.70
Wheeled	8	4	13	2,190	34.69

Graders (AP-42, 5th Ed., Suppl E, Western Surface Coal Mining - Table 11.9-1 (7/98))
PM_{10} (TPY) = $0.60*0.051*S^{\wedge}2*VMT/2000$, VMT=H*S

s Mean Grader Speed (mph)	N Number of Graders	H Hours Worked	PM_{10} (TPY)
8	14	2,190	240.18

Loaders (AP-42, 5th Ed., Suppl E, Western Surface Coal Mining - Table 11.9-1 (7/98))
PM_{10} (TPY) = $0.75*0.119*Q/(M^{\wedge}0.9*2000)$

M Material Moisture Content (%)	Q Material Loaded (tons)	PM_{10} (TPY)
4	912,957	11.700

Scrapers and Rollers are now included under unpaved haul roads.

	Point	Fugitive	Total
Total Bingham Mine Stationary Source PM_{10} (TPY)	13.97	2109.87	2123.84

3/22/2002